United States Patent

Gibson

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[54] **BOTTLE CAP AND POURING FITMENT ASSEMBLY**

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[52] **U.S. Cl.**.....**222/546**, 215/DIG. 1

[51] **Int. Cl.**.....**B65d 47/00**

[58] **Field of Search**.....222/546, 566, 527–530; 215/DIG. 1, 41

[56] **References Cited**

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Primary Examiner—Stanley H. Tollberg

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[57] **ABSTRACT**

A bottle cap and pouring fitment is assembled before being attached to a bottle. When the cap is removed from the bottle, the fitment remains in the neck of the bottle. Meanwhile the cap and fitment cooperate to provide protection against leakage even when the cap is not seated securely.

1 Claim, 5 Drawing Figures

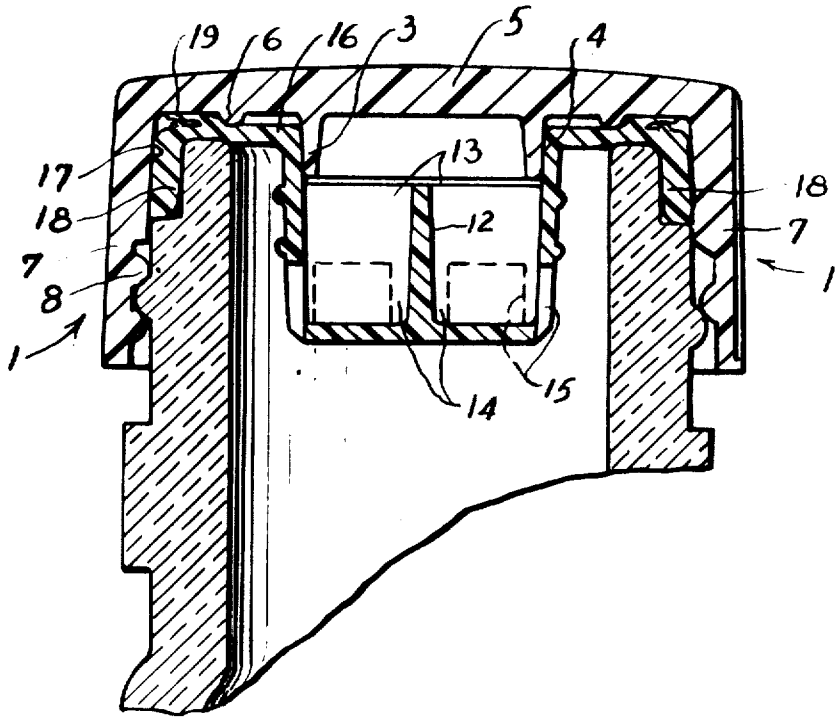


FIG. 1

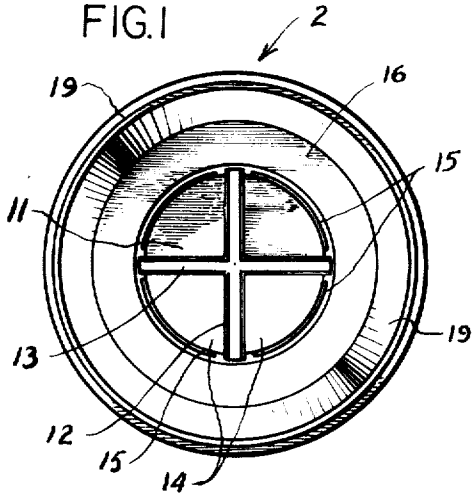


FIG. 3

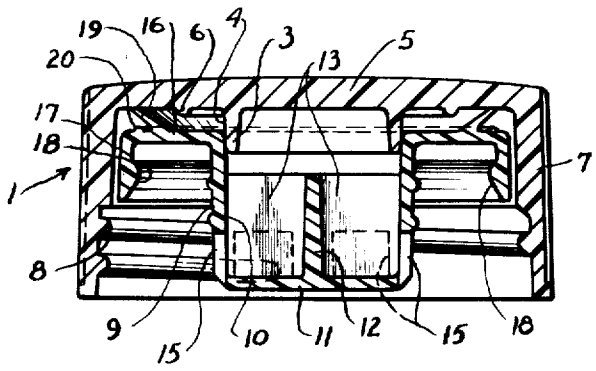


FIG. 2

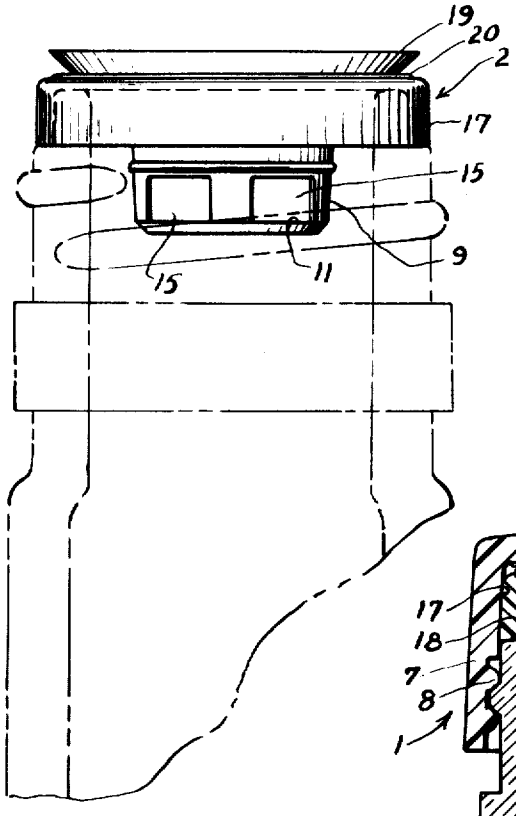


FIG. 5

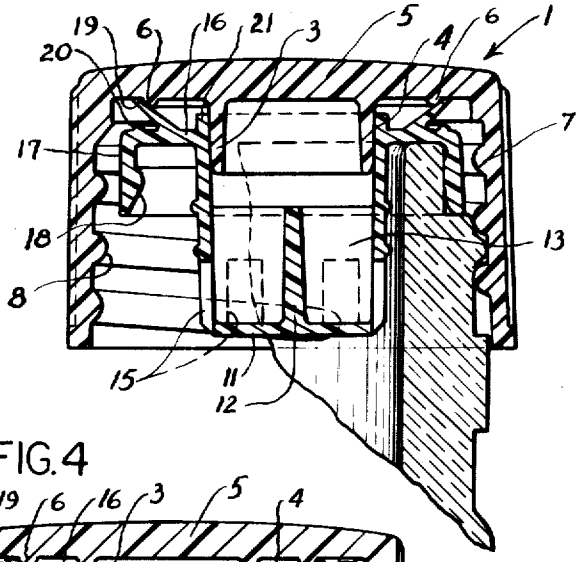
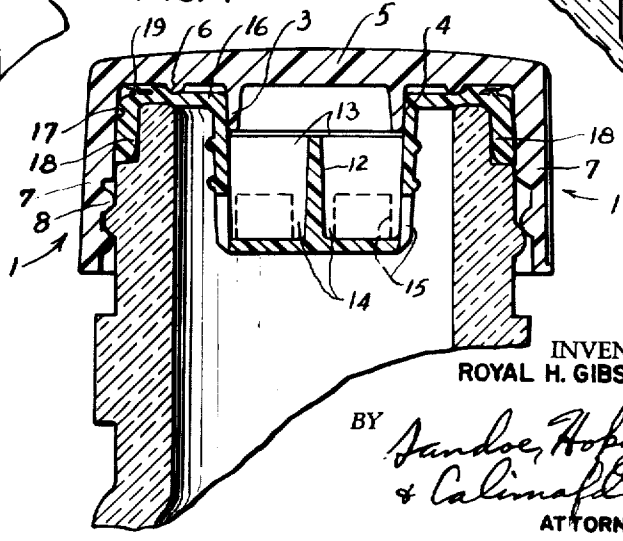


FIG. 4



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BOTTLE CAP AND POURING FITMENT ASSEMBLY

This invention relates to a bottle cap and pouring fitment assembly having novel sealing features to prevent leakage.

Bottles for dispensing liquids, and particularly bottles for alcoholic liquors, are frequently provided with a pouring spout fitment located within the neck of the bottle which improves the flow and prevents spilling and dripping of the contents. Such fitments usually fit over and engage the edge of the neck of the bottle and have provision for egress of liquid and inlet of air. They usually have an annular pouring lip. Caps for such bottles are usually provided with internal screw threads which engage external screw threads on the neck of the bottle.

Such fitments are usually shipped separately from the bottle caps and are inserted in the bottle necks as a separate operation prior to placing the cap on the bottle and screwing it down to seal the bottle tightly to prevent leakage.

It is an object of the present invention to provide a bottle cap and pouring fitment which may be assembled together, shipped in assembled condition, and placed on bottles in assembled condition in a single operation. That is, the placing of the cap on the bottle and screwing it down inserts the fitment into the neck of the bottle and seats it on the edge of the neck of the bottle. Then, when the cap is subsequently removed from the bottle by the user the fitment remains seated on the edge of neck of the bottle.

It has been observed that leakage sometimes occurs during shipment, either because the cap was not screwed down securely originally, or because it becomes loosened during shipment. Leakage also occurs in some cases because the user, after opening the bottle for the first time, fails to screw the cap down securely. It is a further object of the invention, therefore, to provide improved sealing so that leakage will be prevented even when the cap is not seated securely.

Other objects and advantages of the invention will appear hereinafter.

A preferred embodiment of the invention selected for purposes of illustration is shown in the accompanying drawings, in which,

FIG. 1 is a top plan view of a pouring fitment.

FIG. 2 is a front elevation of the fitment as assembled with a bottle, shown in broken lines.

FIG. 3 is a vertical section through an assembled cap and fitment.

FIG. 4 is a similar view showing the cap assembled with a bottle and with the cap screwed down tightly.

FIG. 5 is a similar view of a modified form of cap and fitment.

Referring to the drawings, the cap 1 and the pouring fitment 2 may be made of any suitable materials, the cap preferably being made of rather rigid plastic materials such as styrene or polypropylene, and the fitment being made of somewhat more flexible polypropylene or polyethylene.

The cap 1 is of conventional screw cap design, except that it is provided with an interior, centrally located, depending annular flange 3, the outer wall of which is preferably tapered slightly to form a conical surface 4, the outside diameter of which is slightly

larger at the bottom than at the top where it extends downwardly from the top web 5 of the cap with which it is integrally formed. The top web of the cap is also provided with an annular bead 6. The depending peripheral annular flange 7 of the cap is provided with internal threads 8.

The pouring fitment comprises a centrally located tubular member 9 having a slightly tapered annular wall 10 terminating at its lower end in an integrally formed bottom wall 11. The lower portion of the tubular member 9 is provided with crossed partitions 12 and 13 forming four compartments 14 each of which has a large opening 15 to provide for flow of liquid out of and flow of air into the bottle. As the bottle is tipped to pour, liquid will flow from the bottle through the lower openings, while air will flow into the bottle through the upper openings.

At the top of the tubular member is a horizontal flange 16 terminating in a depending annular flange 17 having an internal enlargement of rib 18 adapted to frictionally engage the outside wall of the neck of the bottle. The flange 16 rests on the upper edge of the neck of the bottle.

The flange 16 has a conical pouring lip 19 projecting upwardly therefrom which engages the bottom surface of the web of the cap. As the cap is screwed down the engagement of the lip with the cap forms a tight seal, the effectiveness of which is increased by the provision of the annular bead 20 against which the pouring lip is pressed to form a cushioned seal as shown in FIG. 4. An additional seal is provided by the engagement of the annular bead 6 with the top surface of the flange 16 as the cap is screwed down.

FIG. 3 shows the cap and pouring fitment as assembled and shipped to the bottler. It will be noted that the tapered interior flange 3 of the cap extends into the upper end of the tubular member 9, so that the outside surface of the flange 3 engages frictionally with the interior surface of the tubular member 9 with sufficient force to hold the cap and fitment together. As the cap is screwed down on the bottle, and after the fitment is seated on the upper edge of the neck of the bottle, continued downward movement of the cap increases the force of the frictional engagement between the tapered surfaces to form an extremely tight seal. When the cap is unscrewed, however, the frictional engagement between those surfaces is insufficient to overcome the frictional force of the flange 17 against the outside wall of the neck of the bottle and the fitment, therefore, remains seated in the neck of the bottle after the cap has been removed. Meanwhile, if the user fails to screw the cap on tightly, or in the event that the cap becomes loosened in transit or for any reason, the seal formed by contact between the tapered flanges will still inhibit leakage.

This ability to inhibit leakage may be increased still further in the modified form shown in FIG. 5 in which the tapered wall 10 of the tubular member 9 is extended to project above the horizontal flange 16 as at 21 so as to maintain frictional engagement with the flange 3 almost until the cap is removed. In this modified form, because the extension 21 tends to make the bead 6 ineffective as a seal, it may be located further outwardly as at 6' to pinch the pouring lip against the bead 20 to form a tight seal.

It will be understood that the invention may be variously modified and embodied within the scope of the subjoined claims.

I claim as my invention:

1. A bottle cap and pouring fitment assembly, comprising, a bottle cap having a top web and an integral annular flange depending from the outer periphery thereof, the inner surface of which is screw threaded, an integral annular interior flange depending from said web, a pouring fitment comprising a tubular member having a horizontal flange extending outwardly therefrom and terminating in a depending annular flange adapted to engage a bottle neck, the outside surface of said interior flange of the cap being in frictional engagement with the interior surface of said tubular member, and a pouring lip formed integrally with said horizontal flange, which said lip projects upwardly and outwardly therefrom to engage the top web of the cap, said horizontal flange being provided with an annular bead positioned outwardly of and beneath said pouring lip, the top web of the cap being provided with an interior annular bead positioned to engage said pouring lip to pinch said pouring lip against said first named bead to form a seal.

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